

# Rate

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A **rate** is a special kind of ratio, indicating a relationship between two measurements with different units, such as miles to gallons or cents to pounds.

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## Example

When dealing with rates, the division operator is sometimes expressed as *per*. If the units are expressed without abbreviation, the bottom unit is singular. If one travels 5 meters in 2 seconds, the following rate is:

$$\frac{5 \text{ meters}}{2 \text{ seconds}} = \frac{5}{2} \text{ meters per second} = 2.5 \text{ meters per second}$$

Often **rate** is a synonym of rhythm or frequency, a count per second. Examples are heart rate or sample rate.

## Unit rate

A **unit rate** is a rate that is simplified so it has a denominator of 1. This type of rate is frequently used when referring to statistics.

The civics membership in the U.S. House of Representatives is based on a population in the preceding census. In 1990, the population of the United States was about 248,000,000. There are 435 members in the house. On average, how many people are represented by each member of the house?

Write the rate that compares the population size to the number of members of the house. Then divide both the numerator and the denominator by 435.

$$\frac{248,000,000 \text{ people}}{435 \text{ members}} = \frac{570,000 \text{ people}}{1 \text{ member}}$$

This rate says that each representative represents about 570,000 people.

## Other meanings

**Mortgage Rate:** The percentage rate at which interest accrues on the mortgage. In most cases, it is also the rate used to calculate the monthly payments.

*Rate*, or more commonly **RaTe** or *ra-te*, is also the alias of a Japanese doujinshi artist.

## See also

- Reaction rate in chemistry
- Rate of reinforcement in behaviorism
- Bit rate in computing

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# Residual

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In general, a residual is a positive or negative numeric difference between two numbers.

- For its use in mathematics, see residual (mathematics).
- In statistics, residual is the observed value minus the predicted value; see errors and residuals in statistics.
- In business, a residual payment is one of an ongoing stream of payments for the completion of past achievements. The entertainment industry use of the word refers to a payment made to the creator of performance art (or the performer in the work) for subsequent showings or screenings.
- In the context of insolvent businesses, the **residual claimants** (shareholders, partners, or sole proprietor) to a bankrupt organization receive any money that is left after all assets are sold and all creditors paid.
- In video compression see Residual frame.
- In finance, a **residual** (or balloon) can refer to a lump sum owed to the financier at the end of a loan's term, expressed either as a dollar value or a percentage of the amount borrowed.

## See also

- Studentized residual
- Residual (entertainment industry)
- The Residuals (Fleet Capital Leasing)

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Category: Disambiguation

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